REMARKS/ARGUMENTS

Favorable reconsideration of the present application is respectfully requested.

Claims 1-5 remain active in the application. Of these, Claim 1 has been amended to clarify that the annular plate elements forming the core portion, the yoke portion and the non-magnetic portion are piled up or stacked in the axial direction of the plunger. Claims 3 and 4 have been amended in response to the rejection under 35 U.S.C. §112 to recite the finish of the inner bore of the stator body in structural form.

As is described on pages 1 and 2 of the specification, it is known to provide an electromagnetic drive device for reciprocally moving a spool of a spool valve by dividing the stator into a core and a yoke which are made of magnetic material and are separated by an air gap or non-magnetic member. The presence of the gap or non-magnetic member separating the core and yoke in the direction of the axis of the plunger thus modifies the magnetic flux path in the manner of the flux path illustrated by an arrowed loop line in Figure 1. Accordingly, the flux path projects from the stator to attract and move the plunger relative to the stator upon energization of the electromagnet.

However, the practical fabrication of the stator is problematic. The prior art stators described on pages 1 and 2 of the specification are expensive and complex to fabricate, and/or are subject to flux leakage. According to a feature of the invention set forth in the claims, a stator body is constituted by piling up and bodily joining a plurality of core portion annular plate elements made of a magnetic material to form the core portion, a plurality of yoke portion annular plate elements made of a magnetic material to form a yoke portion and a plurality of non-magnetic portion annular plate elements made of non-magnetic material to form a non-magnetic portion. Referring to the non-limiting embodiment disclosed in the specification, these portions are respectively represented by the core portion D, the yoke portion E and the non-magnetic portion F in Figure 2. Since the annular plate elements can

be cheaply and easily formed by stamping and arranged in a stack, the stator body having the distinct "magnetic: non-magnetic: magnetic" arrangement in the axial direction of the plunger can be cheaply and easily manufactured.

Claims 1-5 were rejected under 35 U.S.C. §103 as being obvious over Jansen (U.S. patent publication 2003/0168619) in view of Umemoto et al. (U.S. patent 6,420,949). The Examiner there recognized that Jansen fails to disclose a stator yoke, core and non-magnetic portion formed of plate members which are joined together, but alleged that this would have been obvious in view of the plate portions 11 and 12 of Umemoto et al. However, this rejection is respectfully traversed.

As the Examiner has pointed out, Jansen lacks a teaching of a stator body formed by piling a plurality of annular plate members. Instead, Jansen utilizes spacers 110 to separate an end plate 98 from a pole piece 106. Thus Jansen, like the prior art described on pages 1-2 of the present specification, fails to teach or suggest the idea of the present invention as expressed in the claims.

Umemoto et al. discloses a solenoid actuator having a multi-layer core formed using a laminated stack of a plurality of magnetic plates. As is best seen in Figure 4A, the core is formed by stacking core plates 14 which are held by non-magnetic core holders 11 and 12 (column 5, lines 39-48). The core holders 11 include through holes 11f for the armature shafts 7. It is thus evident that the core plates 14 are stacked in a direction *transverse to* the axial direction of the armatures which are caused to move by the energization of the solenoid. Similarly, the "magnetic: non-magnetic: magnetic" serial arrangement of the stator body provided by this stacking is in a direction transverse to the direction of movement of the armature. Thus, to the extent that Umemoto et al. would provide a teaching for those skilled in the art to form a stator body by stacking plates, the teaching is for stacking plates in a direction transverse to the axial direction of the moving element. Accordingly, to the extent

that those skilled in the art would modify Jansen or the prior art disclosed on pages 1-2 of the present specification to use stacked plate elements to form the stator body, the plate elements would be stacked in a direction transverse to the direction of movement of the armature or plunger.

As is evident from the claims, Claim 1 now recites that the stator body is constituted by "piling up in the axial direction [of the plunger] and bodily joining a plurality of core portion annular plate elements to form the core portion, the yoke portion and the non-magnetic portion." Since this is transverse to the direction of stacking which would have been suggested by Umemoto et al., Applicants respectfully submit that the claims define over any combination of the above references.

The rejection under 35 U.S.C. §112 is believed to be moot in light of the amendments to Claims 3 and 4. The specification has been corrected as required in the objection thereto.

Applicants therefore believe that the present application is in a condition for allowance and respectfully solicit an early notice of allowability.

Respectfully submitted,

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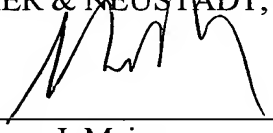

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